Journal of Physics: Conference Series 2014 vol.568

The spin kinetics of 3He in contact with nanosized crystalline powders LaF3

Alakshin E., Gazizulina A., Gazizulin R., Klochkov A., Safin T., Safiullin K., Tagirov M., Zakharov M.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© Published under licence by IOP Publishing Ltd. The spin kinetics of 3He in contact with nanosized crystalline powders LaF3 has been studied by NMR methods at the temperature 1.5 K. The 3He longitudinal relaxation time increases proportionally to the magnitude of the external magnetic field and the transverse relaxation time does not depend on the magnetic field. Relaxation of the gaseous and liquid 3He in contact with nanosized crystalline powder LaF3 takes place by the 3He adsorbed layer. The nuclear magnetic relaxation of adsorbed 3He layer on the surface of LaF3 nanoparticles is due to the two-dimensional spin-diffusion motion.

http://dx.doi.org/10.1088/1742-6596/568/1/012001